

REMARKS

Claims 1, 3-9, and 11-18 stand rejected under 35 U.S.C. 103 (a) as obvious over Streinz et al. ('686) in view of either (1) Smith et al. or (2) McCutcheon's Volume 1: Emulsifiers and Detergents. Applicants traverse this final rejection for the reasons set forth below.

Smith et al. ('905), as the examiner has indicated in the Office Action, is a reference **unrelated** to chemical mechanical polishing, and instead, is directed to methods of removing residues from various surfaces, such as paint removal from objects (e.g., pipes) using sandblasting. The compositions of this reference can contain anionic, cationic, or nonionic surfactants. There is no preference for one type over another. This reference lists 2,4,7,9-tetramethyl-5-decyn-4,7-diol and 4,7-dimethyl-5-decyn-4,7-diol, as examples of nonionic surfactants that can be used according to the '905 invention that is in an art area outside of chemical mechanical polishing. Smith et al. ('905) is used in this Office Action to bring in a teaching about Surfynol™ surfactants. The Examiner's position, in brief, is that it is alleged that this paint sandblasting teaching of Smith suggests its combination with Streinz's CMP teachings because Smith teaches residue removal with an abrasive, similar to use of abrasive in CMP.

It is especially noteworthy, though, that Smith teaches away from typical abrasives (see col. 2, lines 54-67), where Smith disparages prior art that uses "sand or mica", which is silica and complex silicates, respectively, because they represent a waste that can't be incinerated.

The present invention uses as one abrasive choice the same material (i.e., silica is essentially sand) that Smith disparages. Smith wants selective abrasion, in order to selectively remove residues from objects (e.g., removing paint without damaging pipes).

This is why Smith doesn't want just any abrasive, but rather, teaches use of a composite abrasive of polymer coated onto traditional abrasive materials.

In contrast to the above recited abrasives of Smith, the abrasives of the present invention are only one phase and only one composition. The selectivity of the claimed polishing composition of the present invention is **not based** on the **abrasive's properties** like Smith, but rather on the chemical action or "C" part of chemical mechanical planarization or "CMP". More specifically, the present invention entails CMP processing in which metal is **chemically selectively oxidized** to metal oxide, and subsequently, the metal oxide, which is loosened from the surface of the elemental metal, is physically abraded by the abrasive and removed primarily as metal oxide.

Smith teaches a **selective abrasive** for physical removal of material, in contrast, the presently claimed polishing composition uses a **selective chemical reaction** followed by a **non-selective abrasion** with an abrasive, such as those taught in the Present Specification comprising traditional inorganic single phase abrasives.

In view of the above considerations, Applicants believe that Smith is not combinable with Streinz for the reason presented in the Office Action: - namely, that they both contain abrasive. Smith in point of fact disparages and teaches away from the abrasives that Streinz uses, such as "silica", which is sand. See Streinz, col. 5, line 57.

For the reasons presented above, Applicants believe that the Section 103(a) rejection based on combining the Streinz and Smith references is not proper and respectfully request removal of this rejection.

The McCutcheon reference simply is a compilation of a multitude of different surfactants of all types, including anionic, cationic, and nonionic. Included is a family of commercial surfactants that have the trademark "Surfynol®" from Air Products and Chemicals. The vast majority of the Surfynol® surfactants are alkoxylated (e.g.,

ethoxylated), including Surfynol®s 420, 440, 465, and 485w. The only Surfynol® listed in this McCutcheon reference that is non-alkoxyated and has free hydroxyl groups is Surfynol® 104, which is 2,4,7,9-tetramethyl-5-decyn-4,7-diol. There is absolutely no teaching in McCutcheon about the use of any surfactant, whether anionic, cationic, or nonionic, in polishing and CMP compositions. The only teaching that McCutcheon provides that is relevant to the present application is that the multitude of surfactants that are disclosed in this reference are known surfactants having the properties as indicated in that reference.

On pages 3-4 of the Office Action, the Examiner states that “the primary reference specifically implies that no limitation is placed on the surfactant (i.e., implies that any nonionic surfactant can be used). While there is no limitation on choice of nonionic surfactant given in this reference, it is also true that there is no limitation on choice of an anionic surfactant and a cationic surfactant. Furthermore, this reference does not give any guidance in choosing amongst nonionic, cationic, and anionic surfactants for CMP. With no limitation or guidance on surfactant choice being given, this reference is wide open on surfactant choice, and **one is left with choosing amongst hundreds, if not thousands, of different possible choices.**

On page 4 of the Office Action, the Examiner then argues that the motivation to combine the applied references (Streinz and Smith or McCutcheon) is “apparent in the primary reference when it is implied that no limitation is placed on the nonionic surfactant”. Applicants disagree with this viewpoint, because the wide open possibilities of surfactant choice in the Streinz reference actually is **counter-productive in providing guidance and motivation** to combine surfactant teachings from the Streinz reference with the other applied references (Smith and McCutcheon). Having such a broad range of surfactant choices with no limitations as given in Streinz does not

correspond to nor provide for a reasonable teaching, suggestion, or motivation to combine references, as the Examiner has alleged, and as is necessary to establish obviousness. For these reasons, Applicants believe that the Streinz reference is not combinable with either Smith or McCutcheon and respectively request removal of these rejections.

Claims 1, 3-9, and 11-18 stand rejected under 35 U.S.C. 103 (a) as obvious over Misra et al. in view of either (1) Smith et al. or (2) McCutcheon's Volume 1: Emulsifiers and Detergents. Applicants respectfully traverse this rejection for the same reasons presented above for the 103(a) rejection of these claims over Streinz et al. in view of either 1) Smith et al. or 2) McCutcheon's Volume 1: Emulsifiers and Detergents. Applicants request that this rejection be removed.

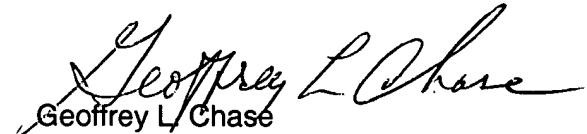
On page 5 of the Office Action, the Examiner has indicated that no evidence of criticality is provided for the claimed surfactant. In response to this point (for which Applicants thank the Examiner), Applicants have obtained evidence of criticality for the claimed inventive surfactant (Surfynol™ 104e, non-alkylated) versus an ethoxylated surfactant. The evidence for criticality is that compositions with the inventive surfactant afford much lower defect levels versus the ethoxylated surfactant (the latter surfactant not within the scope of the present invention). This evidence is presented in an accompanying Rule 132 Declaration by Dr. Junaid Siddiqui, the inventor in the Present Application. Applicants believe that this evidence of unexpected results for an inventive surfactant (an acetylenic alcohol, wherein the acetylenic alcohol has at least two hydroxyl substituents) in contrast to an ethoxylated surfactant (not within the scope of the invention) is clear and convincing.

For all of the above reasons, Applicants believe that they have addressed all bases for the rejections and that the current claims are allowable. Applicants

respectfully request reconsideration by the examiner and the issuance of a Notice of Allowance at the examiner's earliest convenience.

Applicant separately submits a Petition for a Two Month Extension of Time to make this response timely.

Respectfully submitted,


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attachment: Petition for Extension of Time
PTO Form SB/17